

FINAL REPORT
OF THE
OUTDOOR STAGE EQUIPMENT SAFETY COMMITTEE



Indiana Legislative Services Agency
200 W. Washington Street, Suite 301
Indianapolis, Indiana 46204

November, 2012

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OUTDOOR STAGE EQUIPMENT SAFETY COMMITTEE

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Chris Baker
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I. STATUTORY DIRECTIVE

The Indiana General Assembly enacted legislation (IC 2-5-34.7) directing the Committee to do the following:

"The committee shall study the issues related to the regulation of outdoor stage equipment and recommend legislation to the general assembly for the regulation of the use of outdoor stage equipment in Indiana to protect the safety of persons at an outdoor performance."

II. SUMMARY OF WORK PROGRAM

The Committee met three times during the 2012 interim session on September 5, September 27, and October 30.

September 5 meeting

The Committee received testimony on the investigative reports prepared for the Indiana State Fair Commission concerning the August 13, 2011 Indiana State Fair stage collapse.

September 27 meeting

The Committee received testimony on the following:

- (1) Event safety regulation in the United Kingdom.
- (2) Indiana's regulation of outdoor stages and outdoor stage equipment.
- (3) The legislative proposals of the Indiana Department of Homeland Security (IDHS) concerning outdoor stage equipment.

October 30 meeting

The Committee considered recommendations and the final report.

II. INTRODUCTION AND REASONS FOR STUDY

The Indiana State Fair stage equipment rigging structure collapsed on August 13, 2011, resulting in multiple deaths and injuries. The stage itself was considered a Class 1 structure under Indiana law and regulated by the state building code. The equipment rigging structure, which was not permanently attached to the stage, was not considered a Class 1 structure regulated by the state building code. In 2012, the General Assembly passed SEA 273, which classified an equipment

rigging structure not permanently attached to a stage (outdoor stage equipment) as a Class 1 structure. The Fire Prevention and Building Safety Commission (Commission) adopted a temporary administrative rule effective May 3, 2012 to implement SEA 273. The SEA 273 provisions regulating outdoor stage equipment and the temporary rule expire on January 1, 2014. The text of SEA 273 and the temporary rule are attached as Exhibit A.

III. SUMMARY OF TESTIMONY

Investigative reports on the Indiana State Fair Stage Collapse

The Indiana State Fair Commission hired two firms to investigate the stage collapse and prepare reports of their findings and recommendations. Thornton Thomasetti, a structural engineering firm, conducted an independent engineering cause and origin investigation of the stage collapse. Witt Associates, an emergency management consulting firm, assessed the overall state of emergency preparedness at the Indiana State Fairgrounds.

(1) Thornton Thomasetti report

Structural cause of failure

Mr. Scott Nacheman, Thornton Thomasetti, said that the structure failed because the lateral load resisting system (comprised of guy lines connected to concrete ballast) was inadequate, causing the structure to fail at wind speeds lower than the applicable building code and reference standards.

Manufacturer, installer, user

Mr. Nacheman commented on the actions of the manufacturer, installer, and user of the structure. The manufacturer, James Thomas Engineering (JTE), performed an inadequate engineering review of the structure, failed to provide sufficient technical information in its catalog to the installer or user, or advise them to hire a licensed design professional to analyze loading configurations or conditions. The installer, Mid America Sound (MAS), deviated from the manufacturer's directions in installing the lateral load resisting system and did not have the installation reviewed by a licensed design professional. The user, the Indiana State Fair Commission staff, lacked technical data regarding the structure and knowledge regarding the wind limitations of the structure sufficient to establish an appropriate risk mitigation plan.

(2) Witt Associates report

Emergency planning

Mr. Charles Fisher, Witt Associates, said that his firm conducted an independent assessment of the overall state of emergency preparedness at the Indiana State Fairgrounds, assessing the

actions taken by officials before and after the stage collapse. Mr. Fisher discussed the Indiana State Fair Commission's implementation of the report's recommendations, including adopting a new Comprehensive Emergency Management Plan, establishing protocols to delay or cancel entertainment productions, and appointing a chief operations officer and a public safety officer.

Building code assessment

Ms. Anne VonWeller, Building Code Specialist, assessed Indiana's building codes and enforcement for the Witt Associates' report. Ms. VonWeller pointed out the gap in Indiana's laws with regard to regulation of outdoor stage equipment. She said the outdoor stage equipment was not classified under the law as a Class 1 structure. She also commented that in 2008, the Commission adopted the International Building Code (IBC) and International Fire Code (IFC) but deleted provisions from those Codes that would regulate temporary structures. Ms. VonWeller concluded that the Division of Fire and Building Safety (Division) of the Indiana Department of Homeland Security (IDHS) complied with Indiana's code enforcement law in inspecting and permitting the State Fair, but lacked the legal authority or responsibility to inspect the structural elements of the outdoor stage equipment.

Regulatory framework

Regulation of event safety in the United Kingdom (UK)

Mr. Tim Roberts, Director and Senior Safety Advisor for the Event Safety Shop, Ltd., discussed the UK's safety laws and regulations. Mr. Roberts said that the UK's public safety legislation is not detailed or prescriptive, but instead creates a broad standard that must be met to ensure the health and safety of all employees and others who may be affected by a work activity. Mr. Roberts said that parties follow published guidelines, which are not adopted into law, on how to meet the standards. He said this scheme of regulation is flexible and adaptable, because the non-specific legislation does not require constant amendment to react to changing technology, while the guidelines adapt easily to change. Mr. Roberts discussed the Purple Guide, the guidelines used for event staging in the UK, saying that a United States version of the Guide should be available in February 2013. He also discussed "Temporary Demountable Structures: guidance on procurement, design and use" (TDS), commenting that these guidelines are useful in stage and grandstand construction.

IDHS regulation and enforcement

State Fire Marshal Greeson said that until the adoption of SEA 273, outdoor stage equipment did not fit the definition of a Class 1 structure and the Division lacked the authority to inspect and permit it. He addressed the Commission's adoption of temporary rules and the exemption from the rules for small assemblies that do not extend more than 20 feet above the stage surface, if: (1) the public is prohibited from being within an area from the stage equal to each foot of height from the ground to the highest point of the stage equipment, plus eight feet; and (2) a person is not located in any portion of the equipment except during dismantling or installation.

State Fire Marshal Greeson explained that all festivals and events must obtain amusement and entertainment permits (IC 22-14-3-2) which require fire safety inspections. He said the Division has made it easier for small temporary stages to receive permits, if they meet certain surface area, weight, height, and occupancy criteria. State Fire Marshal Greeson said that IDHS updated the amusement and entertainment permit form to enable IDHS to track which events use outdoor stage equipment. He also discussed the success of IDHS' education outreach program which increased the awareness of event organizers regarding permitting requirements and emergency plan preparation. Mr. Steve Patterson, Indiana Association of Fairs, Festivals, and Events, voiced support for continuation of the IDHS education outreach program, and commended the IDHS for being receptive and available to event organizers. IDHS Executive Director, Mr. Joseph Wainscott, Jr., emphasized that IDHS wants to encourage event organizers to talk to local public safety providers about emergency planning.

Witness recommendations

Use of design professionals

Mr. Nacheman and Ms. VonWeller recommended that temporary entertainment structures be designed by experienced design professionals. Mr. Nacheman recommended engineering analyses of the engineered structure and to establish pre-approved rigging configurations. Both witnesses recommended that operational controls and plans be in place.

Structure design

Mr. Nacheman said that temporary entertainment structures should be designed specific to their location, analyzing the environmental and site-specific loading conditions. Mr. Nacheman said that if possible, guy line anchor systems for entertainment structures should use fixed, mechanical anchors.

Inspection of completed structure

Mr. Nacheman and Ms. VonWeller recommended that a completed structure should be inspected by an independent professional specially qualified to inspect temporary structures.

Classification/ assessment of risk

Mr. Nacheman said that the structure design and approved rigging configurations should be subject to all requirements for Class 1 structures, including plan review.

Mr. Nacheman said that entertainment structures should be classified based on hazards associated with failure and on cumulative exposure to risk rather than on exposure to risk from an individual season of use. Ms. VonWeller said that the broad exemptions in the state building codes for temporary structures should be reevaluated and there should be regulation of temporary structures presenting an unacceptable risk.

Incorporation of codes and standards in rules

Ms. VonWeller recommended that the Commission incorporate the IBC and IFC provisions regarding temporary structures and national standard ANSI E1.21-2006 or ANSI E1.21-2012.

Mr. Nacheman said that amendment of model codes and reference standards should not alter the intent of the original language with regard to life-safety and that model provisions should not be deleted if not addressed elsewhere in the state's law.

Codes

Ms. VonWeller recommended adding requirements to the national codes for regulation of temporary entertainment structures. Mr. Nacheman said that comprehensive engineering-based documents related to the design, construction, and use of entertainment structures need to be developed.

IDHS recommendations

State Fire Marshal Greeson discussed the IDHS' recommendations for legislation. He said that SEA 273's provisions making outdoor stage equipment a Class 1 structure should be made permanent by removing the January 1, 2014 expiration date. He recommended authorizing the Commission to readopt the current emergency rule (to expire January 1, 2016) to allow the Commission time to adopt permanent administrative rules implementing the legislation. State Fire Marshal Greeson recommended amendment of IC 10-9-3-7 to allow the executive director of the IDHS to adopt rules concerning emergency action plans or emergency response plans for facilities where outdoor stage equipment is located. He said this last amendment would clarify the executive director's powers and that the rules would create consistency among emergency plans.

Other witnesses' recommendations:

- Mr. Steve Patterson, Indiana Association of Fairs, Festivals, and Events, said that his organization supports making the provisions of SEA 273 permanent and continuing the Commission's the authority to adopt administrative rules to regulate these structures.
- Mr. Rick Powers, City of Indianapolis, opposed adopting legislation that creates an overarching structure and inhibits the autonomy of the city to handle events.
- Mr. Tim Roberts, Director and Senior Safety Advisor for the Event Safety Shop, Ltd., (UK) recommended that Indiana maintain a regulatory framework that permits flexibility and adaptability. He recommended a flexible, non-detailed statutory framework that does not require frequent amendment in response to rapidly changing technology.
- Mr. Randy Brown, Allen County War Memorial Coliseum/International Association of

Venue Managers, recommended considering use of the Purple Guide, and stated that national event safety standards are needed. Mr. Brown also said that emergency management plans are necessary for all events and recommended that events have trained crowd managers.

Code enforcement

Ms. VonWeller recommended that the state provide sufficient resources to the Division for code enforcement regarding the types of structures that are the subject of SEA 273.

IV. COMMITTEE FINDINGS AND RECOMMENDATIONS

The Committee did not make any findings of fact.

The Committee considered the following legislative recommendation:

PD 3454 Outdoor stage equipment

PD 3454 makes permanent temporary statutes that authorize the fire prevention and building safety commission ("commission") to adopt rules to regulate outdoor stage equipment as a Class 1 structure and provides that the commission's temporary rules governing outdoor stage equipment will expire on or before January 1, 2016 instead of January 1, 2014. PD 3454 allows the executive director of the Indiana department of homeland security to adopt rules governing emergency action plans or emergency response plans for outdoor performances where outdoor stage equipment is used.

The Committee amended PD 3454 to change all references to "outdoor stage equipment" in the PD to "outdoor event equipment" to reflect that the law applies to other aspects of an event, such as the adoption an emergency plan.

The Committee recommended PD 3454 as amended, for consideration by the General Assembly.

WITNESS LIST

Randy Brown, Allen County War Memorial Coliseum/ International Association of Venue Managers

Charles E. Fisher, Preparedness Operations, Witt Associates

State Fire Marshal James Greeson

Scott G. Nacheman, MSc.Eng., AIA, Thornton Thomasetti

Steve Patterson, Indiana Association of Fairs, Festivals, and Events

Rick Powers, City of Indianapolis

Tim Roberts, Director and Senior Safety Advisor for the Event Safety Shop, Ltd.

Anne Vonweller, Building Code Specialist, former president of the International Code Council

Joseph E. Wainscott, Jr., Executive Director of the Indiana Department of Homeland Security